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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, ANDREW H

ART UNIT

PAPER NUMBER

4124

NOTIFICATION DATE

DELIVERY MODE

11/13/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/804,124	Applicant(s) KRETSCHMER, JOACHIM	
	Examiner Andrew Nguyen	Art Unit 4124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-28, 33 and 34 is/are rejected.
- 7) ☒ Claim(s) 29-32 and 35-43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/2/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/2/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 29 is objected to because of the following informalities: "said" is misspelled at the end of the first paragraph. Appropriate correction is required.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the closed volume (claims 36 and 37) defined by a retaining bellows and a first rolling bellows must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the closed volume 35 (in Figure 3) and the closed volume 45 (in Figure 4) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 20-28 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 3,711,027 to Carey (Carey).

In reference to claim 20:

Carey teaches: *An extendible exhaust nozzle bell (Fig 1) for a rocket engine of an aircraft or spacecraft, comprising: a first part (16, Fig 1) and a second part (18, Fig 1), wherein said first part, which has a smaller diameter than said second part, is fixedly arranged on a motor of the rocket engine and said second part is arranged in a flexible manner with respect to the first part, such that, in a front stowed position, said second part is located to surround said first part and, in a rear operating position, is located to continue the first part (Fig 3);*

a closed volume (25, Fig 2) acted on by a gaseous fluid, which, when acted on by the gaseous fluid by enlargement of the volume, said first and second parts are structured and arranged to extend said second part from said front stowed position into said rear operating position (Fig 1 – 3); and

said closed volume being formed at least in part by a deformable rolling bellows (15, Fig 1) arrangement coupled between said second part (18, Fig 1) and a fixed part of one of the rocket engine (12, Fig 1), the aircraft, or the spacecraft.

In reference to claim 21:

Carey teaches: *The extendible exhaust bell in accordance with claim 20, wherein, when in said front stowed position, said second part is positioned closer (Fig 1) to the rocket motor than when in said rear operating position (Fig 3).*

In reference to claim 22:

Carey teaches: *The extendible exhaust bell in accordance with claim 20, wherein said rolling bellows arrangement comprises at least one rolling bellows formed essentially in a rotationally symmetrical manner (15, Fig 1) with respect to the longitudinal axis of the rocket engine.*

In reference to claim 23:

Carey teaches: *The extendible exhaust bell in accordance with claim 22, wherein said at least one rolling bellows is formed to circulate over an entire circumference of the exhaust nozzle bell (15, Fig 1).*

In reference to claim 24:

Carey teaches: *The extendible exhaust bell in accordance with claim 20, wherein said rolling bellows arrangement comprises:*

a first rolling bellows (15, Fig 1) structured and arranged to form a seal for the gaseous fluid that is connected to one of a circumferential area of said first part or another

fixed part of the aircraft or spacecraft and to a circumferential area of said second part; and a second bellows (22, Fig 2) structured and arranged to form a further seal of the volume (25, Fig 2) for the gaseous fluid limited by the said rolling bellows.

In reference to claim 25:

Carey teaches: *The extendible exhaust bell in accordance with claim 24, wherein said second bellows (22, Fig 2) comprises a sealing bellows that closes a jet opening of said second part and that, together with said first rolling bellows and said first and second parts, is structured and arranged to limit the closed volume (25, Fig 2) acted on by the gaseous fluid inside the exhaust nozzle bell.*

In reference to claim 26:

Carey teaches: *The extendible exhaust bell in accordance with claim 25, wherein said circumferential area of said first part to which said first rolling bellows is connected is located on a rear end of said first part (16, Fig 1), and said circumferential area of said second part to which said first rolling bellows (15, Fig 1) is connected is located on a front end of said second part (18, Fig 1).*

In reference to claim 27:

Carey teaches: *The extendible exhaust bell in accordance with claim 25, wherein said sealing bellows are structured to include a preset breaking point at which said sealing bellows burst open (Fig 3, column 3 lines 46-51).*

In reference to claim 28:

Carey teaches: *The extendible exhaust bell in accordance with claim 27, wherein said preset breaking point is designed to correspond to the extension of said second part into said operating position in order to clear said jet opening (Fig 3, column 3 lines 46-51).*

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3,711,027 to Carey (Carey) as applied to claim 20 above, and further in view of US Patent 4,676,436 to Willis (Willis).

In reference to claim 33:

The extendible exhaust bell in accordance with claim 20, further comprising a retaining device structured and arranged to brake movement during extension of said second part from said front stowed position into said rear operating position.

Carey teaches an exhaust nozzle extension system substantially according to claim 20, but does not specify a retaining device structured and arranged to brake movement during extension of said second part from front stowed position into said rear operating position. Willis teaches a nozzle extension system that uses links (17, 18 Fig

2A) connected to the first part and second part. As the second part is extended into the operating position, the linkage system serves as a braking system to “minimize shock when the extension mates with the end of the nozzle” (column 5 lines 43-48). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the retaining device of Willis on Carey’s nozzle extension system in order to minimize the shock when the extension piece is deployed, as explicitly taught by Willis.

In reference to claim 34:

The extendible exhaust bell in accordance with claim 33, wherein said retaining device is further structured and arranged to center said second part during said extension from said front stowed position into said rear operating position

The retaining device of Willis is arranged with equally spaced attachments around the circumference of the nozzle. This arrangement will allow the nozzle to be centered as it is being deployed. When the retaining device of Willis is added to the system of Carey, the device will be structured and arranged to center the second part during extension.

Allowable Subject Matter

8. Claims 29-32 and 35-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

In reference to claims 29-32:

The extendible exhaust bell in accordance with claim 24, wherein said second bellows comprises a second rolling bellows connected to a fixed part of the aircraft or spacecraft and to a circumferential area of said second part, which forms a further seal for the gaseous fluid, which lies at least in part radially outside with respect to said first rolling bellows, whereby said closed volume acted on by the gaseous fluid is located at least in part outside the exhaust nozzle bell and is limited between said first rolling bellows and said second rolling bellows.

The closed volume located radially outside/outboard of the nozzle, which, when pressurized, causes the second part to deploy to the operation position, is not fairly described by prior art. Carey pressurizes a chamber within, not outside, the nozzle to deploy the second part. It would not have been obvious to one of ordinary skill in the art at the time of the invention to create a chamber outside of the nozzle to deploy the second part.

In reference to claim 35:

The extendible exhaust bell in accordance with claim 33, wherein said retaining device comprises one or more retaining cables coupled with a cable brake that extend between said second part and a fixed part of the aircraft or spacecraft.

A cable brake comprised of one or more retaining cables that extend between the deployable second part and the aircraft is not fairly described by prior art. Willis

teaches a nozzle deployment system that would serve as a retaining device for the second part, but does not have a cable extending from the aircraft to the second part.

In reference to claims 36-39:

The extendible exhaust bell in accordance with claim 33, wherein said retaining device comprises a retaining bellows that extends between a circumferential area of said first part and a circumferential area of said second part, said retaining device being arranged at a front, with respect to said first rolling bellows, and together with said first rolling bellows, forms a further closed volume to acted on with a gaseous fluid.

The closed volume defined by the retaining bellows and the first bellows, which, when acted on by a gaseous fluid, causes a braking of the movement during the extension of the second part, is not fairly described by prior art. The pneumatic control of the nozzle extension in the prior art such as Carey occurs within the nozzle, not outside of it.

In reference to claim 40:

The extendible exhaust bell in accordance with claim 33, wherein said retaining device comprises retaining and centering bellows extending between a front circumferential area of said first part and a front circumferential area of said second part

A retaining and centering bellows extending between a front circumferential area of a first part and a front circumferential area of a second part is not fairly described by the prior art. Carey teaches a bellows that extends from a front circumferential area of a second part, but it extends to a rear circumferential area of a first part.

In reference to claim 41:

The extendible exhaust bell in accordance with claim 33, wherein said retaining device comprises retaining and centering bellows extending" between a rear circumferential area of said first part and a rear circumferential area of said second part.

A retaining mechanism comprising retaining and centering bellows is not fairly described by prior art. Retaining mechanisms such as the one described by Willis are comprised of stiff rods requiring actuators to control them. It would not have been obvious to one of ordinary skill in the art at the time of the invention to substitute flexible retaining bellows for the rods.

In reference to claims 42-43:

The extendible exhaust bell in accordance with claim 40, wherein said retaining and centering bellows are structured and arranged to burst or separate.

A retaining mechanism comprising retaining and centering bellows that are designed to burst or separate is not fairly described by prior art. Retaining mechanisms such as the one described by Willis are comprised of stiff rods requiring actuators to control them. It would not have been obvious to one of ordinary skill in the art at the time of the invention to substitute flexible retaining bellows for the rods.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Nguyen whose telephone number is 571-270-5063. The examiner can normally be reached on Monday through Friday 8:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Bomberg can be reached on 571-272-4922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AN
/T. S. C./

/Thor S. Campbell/
Primary Examiner, Art Unit 3742